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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/717,028

11/18/2003

Bo Li

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EXAMINER

JOHNSON, CONNIE P

ART UNIT

PAPER NUMBER

1795

MAIL DATE

DELIVERY MODE

08/28/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/717,028	Applicant(s) LI ET AL.	
	Examiner CONNIE P. JOHNSON	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 June 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-15,18,26-31 and 37 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-15,18,26-31 and 37 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

ETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 6/22/2009 has been entered.

Response to Amendment

2. The remarks and amendment filed 6/22/2009 have been entered and fully considered.
3. Claims 1, 3, 5-15, 18, 26-31 and 37 are presented.
4. Claim 1 is amended.
5. Claim 4 is cancelled per applicants' request.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:
- The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
7. Claims 1, 3, 5, 7-15, 18, 26-31 and 37 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites, "wherein the at least one adhesion promoter does not initiate significant crosslinking activity in the composition." The phrase "significant crosslinking

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activity" is relative and therefore is not defined. Claims 3, 5, 7-15, 18, 26-31 and 37 are dependent upon claim 1 and are also rejected as not clearly defining the phrase "significant crosslinking activity."

Claim 1 also recites "strongly absorbs light" in line 12 of the claim. However, the term, "strongly" is not defined in the claim.

8. Claim 13 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 13 recites "such as" in line 2. The phrase "such as" does not clearly define the claim.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 1, 4-15 and 27-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kennedy et al., U.S. Patent No. 6,506,497 B1 in view of Putzer, U.S. Patent Publication No. 2004/0122197 A1.

Kennedy teaches an anti-reflective coating composition comprising one or more organic light-absorbing compounds (abstract). The composition also comprises silane reactants that meets the limitations of the material modification agent in claim 1 (col. 6,

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lines 22-26). The organic compounds have an absorption peak at least 10nm wide over wavelengths 248, 193 and 365nm (col. 4, lines 44-47). The organic compounds comprise two or more benzene rings as in claim 8 (see figures 1a and 1b). The organic compounds may also comprise anthraflavic acid, 9-anthracene carboxylic acid, 9-anthracene methanol, alizarin and other compounds in col. 2, lines 63-67 and col. 3, lines 1-3. The inorganic compounds may also comprise silicon based compounds, such as methylsiloxane, methylsilesquioxane, phenylsiloxane and hydrogensilsesquioxane polymers (col. 3, lines 7-22 and 5-32). Kennedy also teaches naphthalene based compounds, which have fused benzene rings as in claim 9 (col. 4, line 33). Further, Kennedy teaches acids in the composition that are capable of representing an adhesion promoter (col. 6, lines 32-34). The difference between the reference and the instant invention is that Kennedy does not teach aminopropyltriethoxysilane as the adhesion promoter.

However, Putzer teaches a composition comprising an organic dye and a polyorganosiloxane (col. 2, lines 52-58). The composition also comprises a silane adhesion promoter, such as aminopropyltriethoxysilane (APTEOS) (page 3, [0045] and formulation C, Table 2). Putzer discloses improved adhesion results wherein the composition comprises aminopropyltriethoxysilane as an adhesion promoter and a polymethyl methacrylate resin. Kennedy also teaches polymethyl methacrylate resin in the composition. Therefore, it would have been obvious to one of ordinary skill in the art that the composition of Kennedy would benefit from the addition of aminopropyltriethoxysilane as the adhesion promoter to provide improved adhesion in the composition.

11. Claims 1, 3, 11, 12, 13, 26, 27, 28 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Putzer, U.S. Patent Publication No. 2004/0122197 A1 in view of Baldwin et al., U.S. Patent Publication No. 2002/0068181 A1.

Putzer teaches a composition comprising an organic dye (page 6, [0087]), a polyorganosiloxane (col. 2, [0012-0016]), polydimethylsiloxanes and aminopropyltriethoxysilane (APTEOS) as an adhesion promoter as in instant claim 31 (page 3, [0045] and formulation C, Table 2) and a catalyst as in instant claim 1. The organic dye is capable of absorbing radiation and meets the limitations of an organic absorbing compound. The catalyst comprises an acid as in instant claims 26 and 28 (page 5, [0069]). Putzer also teaches salts of phosphoric acid esters that meet the limitations of a neutral adhesion promoter (page 4, [0053]). Putzer does not teach an organic absorbing compound that has an absorption peak of at least 0.5nm wide at wavelengths of less than 375nm.

However, Baldwin teaches a coating composition comprising an organic absorbing compound, an inorganic based compound and a silane reactant. The organic absorbing compound has an absorption peak at least approximately 10nm wide wavelength range at wavelengths less than 375nm (page 2, [0014]). It would have been obvious to one of ordinary skill in the art to add the organic absorbing compound of Baldwin in the composition of Putzer because Baldwin teaches the organic absorbing compounds are suitable for spin on glass compositions.

12. Claims 1, 3, 7, 11, 12, 13, 18, 26, 29, 30, 31 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ravichandran et al., U.S. Patent No. 6,677,392 B2 in view of Hayashi et al., U.S. Patent Publication No. 2003/0091838 A1 and further in view of Baldwin et al., U.S. Patent Publication no. 2002/0068181 A1.

Ravichandran teaches an absorbing composition consisting of an inorganic compound, an absorbing compound and a material modification agent (Column 9, lines 50-59 and column 10, lines 55-67). The viscosity improvers, light stabilizers, biocides and antistatic agents meet the limitations of material modifiers (col. 10, lines 56-60). The absorbing compounds include an epoxy carboxy resin and a silane modified acrylic melamine (column 10, line 9) as claimed in instant claim 7. In addition, when water-soluble, water miscible or water dispersible coatings are preferred, ammonium salts of acid groups present in the resin are formed. For example, a powder coating composition can be prepared by reacting glycidyl methacrylate with selected alcohol components (column 23, lines 49-53). Ravichandran also teaches silicon oxide as an inorganic compound used in combination with polysiloxanes and other activators and ligands as a stabilizer in the polymer composition (column 12, lines 20-41). Ravichandran also teaches phosphites (column 19, no. 4) as stabilizers used in the composition as in instant claim 18. In reference to claims 29 and 30, crosslinked polymers such as phenol/formaldehyde resins and epoxy acrylates are also used as stabilizers in the composition (column 14, no. 21 and 24). Ravichandran teaches adhesion promoters used in polymerization includes dialkoxyalkylsilanes, trialkoxysilanes and other similar silane intermediates (column 27, lines 56-61) as in instant claim 31. Ravichandran does not teach the adhesion promoters as in claim 1 of the invention nor that the organic absorbing compound has an absorption peak of at least 0.5nm wide at wavelengths of less than 375nm.

However, Hayashi teaches a film-forming composition comprising a siloxane polymer with a structure as in formula (3) on page 1. The composition also comprises an

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organic compound (page 2, [0025-0026]) and an ammonium compound. The ammonium compound forms a composition with a low dielectric constant, high modulus and excellent adhesion to the substrate (page 4, [0043]). The ammonium compound includes ammonium nitrate (page 4, [0050]), tetramethylammonium nitrate, tetramethylammonium acetate, tetrabutylammonium nitrate and tetrabutylammonium acetate (page 7, [0055-0056]). It would have been obvious to one of ordinary skill in the art that tetramethylammonium nitrate, tetramethylammonium acetate, tetrabutylammonium nitrate or tetrabutylammonium acetate would combine with the silicon polymer in the composition of Ravichandran to form a silicon-based film with improved film-forming characteristics as taught by Hayashi because Hayashi teaches any of the ammonium compounds are capable of combining with the silicon polymer to form films with improved characteristics.

Additionally, Baldwin teaches a coating composition comprising an organic absorbing compound, an inorganic based compound and a silane reactant. The organic absorbing compound has an absorption peak at least approximately 10nm wide wavelength range at wavelengths less than 375nm (page 2, [0014]). The organic absorbing compounds have significant absorption at sub 200nm wavelengths. Putzer teaches photolithographic compositions that absorb at wavelengths of less than 375nm. Therefore, it would have been obvious to one of ordinary skill in the art to add the organic absorbing compound of Baldwin in the composition of Putzer because Baldwin teaches the organic absorbing compounds are suitable for photolithographic compositions.

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13. Claims 1 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kennedy et al., U.S. Patent No. 6,506,497 B1 in view of Putzer, U.S. Patent Publication No. 2004/0122197 A1 and further in view of Dammel et al., U.S. Patent Publication No. 2004/0166434 A1.

Kennedy teaches an anti-reflective coating composition comprising one or more organic light-absorbing compounds, an inorganic compound and a silane reactant as relied upon above. Kennedy does not teach TMAA, TMAN or the compounds in claim 37.

However, Dammel teaches a resist coating composition comprising a polymer, a photoacid generator and an alkaline solution. The alkaline solution includes tetramethylammonium acetate (TMAA) (page 19, [0095]). It would have been obvious to one of ordinary skill in the art to use the tetramethylammonium acetate of Dammel in the resist composition of Kennedy because the TMAA promotes adhesion between the resist and antireflective layers.

Response to Arguments

14. Applicant's arguments filed 6/22/2009, with respect to the rejection(s) of claim(s) 1, 3, 11, 12, 13, 26, 27, 28 and 31 under 102(e), claims 1, 4-15 and 27-28 under 103(a), claims 1, 3, 7, 11, 12, 13, 18, 26, 29, 30, 31 and 37 under 103(a) and claims 1 and 37 under 103(a) have been fully considered and are persuasive. Therefore, the rejections have been withdrawn. However, upon further consideration, new ground(s) of rejection are made herein.

15. Applicant argues that the Putzer reference is different than the instant invention. Further, that Putzer teaches that the adhesion promoters are crosslinking agents and

that claim 1 of the instant invention has been amended to recite that the adhesion promoter does not initiate significant crosslinking activity in the composition.

Putzer teaches a composition comprising a polyorganosiloxane and an adhesion promoter wherein the adhesion promoter is aminopropyltriethoxysilane as in instant claim 1 (page 8, table 2). Putzer specifically lists aminopropyltriethoxysilane as an adhesion promoter in table 2. Therefore, Putzer definitely teaches aminopropyltriethoxysilane as an adhesion promoter as claimed. There is no difference between the aminopropyltriethoxysilane of Putzer and the aminopropyltriethoxysilane in instant claim 1. In addition, applicant claims polyorganosiloxanes as in the Putzer reference. Therefore, Putzer's composition would be expected to crosslink.

16. Applicant argues that the chemistry in the instant invention is completely different than the chemistry of the Putzer reference. Further, that the instant invention discloses bases and amines that do not crosslink, while Putzer teaches significant crosslinking and is driven by acid chemistry.

Although Putzer may teach an acid in the composition, Putzer teaches the same amine compounds as an adhesion promoter as claimed in the composition, the aminopropyltriethoxysilane. Therefore, the chemistry of the Putzer composition is not completely different from the instant invention. With regards to the crosslinking, applicant claims polyorganosiloxanes just as in the Putzer reference. Therefore Putzer's composition would be expected to crosslink polyorganosiloxanes.

17. Applicant argues the limitation in amended claim 1, "wherein the absorbing compound strongly absorbs light over at least an approximately 0.5nm wide wavelength range at wavelengths less than 375nm" is not taught by Ravichandran.

In the new 103(a) rejection, Baldwin is used to teach the limitation “wherein the absorbing compound strongly absorbs light over at least an approximately 0.5nm wide wavelength range at wavelengths less than 375nm”.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Connie P. Johnson whose telephone number is 571-272-7758. The examiner can normally be reached on 7:30am-4:00pm Monday thru Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner’s supervisor, Cynthia Kelly can be reached on 571-272-1526. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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/Connie P. Johnson/
Examiner, Art Unit 1795

/Cynthia H Kelly/

Supervisory Patent Examiner, Art Unit 1795